IN THE CLAIMS

We claim:

1. A copper alloy consisting, by weight, essentially of:
   from 0.8% to 3% of iron;
   from 0.3% to 2% of nickel;
   from 0.6% to 1.4% of tin;
   from 0.005% to 0.35% of phosphorous; and
   the balance copper and inevitable impurities.

2. The copper alloy of claim 1 wherein said iron is present in an amount of from 1% to 2%.

3. The copper alloy of claim 2 wherein said iron is present in an amount of from 1% to 1.5%.

4. The copper alloy of claim 2 wherein said nickel is present in an amount of from 0.5% to 1.3%.

5. The copper alloy of claim 4 wherein said nickel is present in an amount of from 0.5% to 1%.

6. The copper alloy of claim 4 wherein said tin is present in an amount of from 0.7% to 1.1%.

7. The copper alloy of claim 6 wherein said tin is present in an amount of from 0.8% to 1%.

8. The copper alloy of claim 6 wherein said phosphorous is present in an amount of from 0.01% to 0.1%.

9. The copper alloy of claim 8 being formed into an electrical connector.

10. A copper alloy consisting, by weight, essentially of:

from 1% to 1.5% of iron;

from 0.5% to 1% of nickel;

from 0.8% to 1% of tin;

from 0.01% to 0.1% of phosphorous; and

the balance copper and inevitable impurities, said alloy having a yield strength of 70 ksi or higher, an electrical conductivity in excess of 40% IACS and sufficient resistance to stress relaxation that over 75% of an imposed stress remains when exposed to temperatures of up to 150°C for up to 3000 hours.

11. The copper alloy of claim 19 formed into an electrical connector.

12. A method for the manufacture of a copper alloy having an electrical conductivity in excess of 40% IACS and sufficient resistance to stress relaxation that over 75% of an imposed stress remains when exposed to temperatures of up to 150°C for up to 3000 hours, comprising the steps of:

(a) casting a copper base alloy containing, by weight, 0.8% to 3% of iron, 0.3% to 2% of nickel, 0.6% to 1.4% of tin, 0.005% to 0.35% of phosphorous and the balance copper and inevitable impurities;

(b) hot working said copper alloy at a temperature in excess of 700°C thereby forming a slab:

(c) cold working said slab to a first desired thickness thereby forming a strip;

(d) annealing said strip at a temperature of between 500°C and 650°C for from 2 hours to 6 hours;

(e) cold working said strip to an intermediate thickness;

(f) annealing said strip at a temperature of between 450°C and 600°C for from one to six ours;

(g) cold working said strip to a desired final gauge; and

(f) relief annealing said strip at final gauge at a temperature of between 200°C and 350°C for from thirty minutes to six hours.

13. The method of claim 12 wherein said hot working occurs at a temperature of between 750°C and 950°.

14. The method of claim 13 including the additional stirp of removing surface oxides from said slab following hot working.

15. The method of claim 14 wherein said intermediate thickness is selected so that said strip has a yield strength of 70 ksi or higher following said relief anneal step (f).

16. The method of claim 15 wherein said relief anneal is at a temperature of between 250°C and 325°C for a time of from one to three hours.

17. The method of claim 16 including forming said copper alloy at desired final gauge into an electrical connector.

18. The method of claim 14 wherein said intermediate thickness is selected so that said strip has a yield strength of 75 ksi or higher following said relief anneal step (f).

19. The method of claim 18 wherein said relief anneal is at a temperature of between 250°C and 325°C for a time of from one to three hours.

20. The method of claim 19 including forming said copper alloy at desired final gauge into an electrical connector.